

# **MODIS Technical Team Meeting Minutes**

**May 31, 1996**

The MODIS Technical Team Meeting was chaired by Vince Salomonson. Present were Bill Barnes, Dick Weber, David Toll, Steve Ungar, Chris Justice, Harry Montgomery, Bruce Guenther, Al Fleig, Robert Wolf, and Fred Patt.

## **1.0 SCHEDULE OF EVENTS**

June 11 - 13	Primary Productivity Workshop at GSFC
July 17 - 18	Atmosphere Discipline Group Meeting in Chincoteague, VA
Oct. 2 - 4	MODIS Science Team Meeting (tentative)
Aug. 16	Revised ATBDs due to the EOS Project Science Office

## **2.0 MINUTES OF THE MEETING**

### **2.1 MODIS Pointing Issues**

The issue of reducing the prelaunch testing for the MODIS pointing precision from last week's meeting was extended. (See the May 23, 1996, Minutes for more background information).

MODIS delivery is currently projected to be in January 1997, which is unacceptable, in light of both the Lockheed-Martin closing of Valley Forge and budget constraints. The AM Project recommends reducing the SBRs MODIS prelaunch pointing tests to save schedule. Reduced pointing testing will save crucial time, and is less painful to science than alternative test reductions, since pointing knowledge can be recovered in orbit. Weber presented the ramifications of relaxing the MODIS pointing knowledge requirement (Attachment 1). His second and third visuals show the current and proposed allocations for the MODIS pointing knowledge as a function of roll/scan, pitch/track, and yaw. The proposed change (3 sigma) is from the specified total (static and dynamic) RSS of 90 arc seconds to 300 arc seconds for MODIS, and to approximately 1200 m (3 sigma MODIS plus Spacecraft) knowledge at beginning of on-orbit measurements. In his last visual, he summarizes the pointing testing preserved versus the testing eliminated to insure 300 arc seconds MODIS knowledge. Pointing tests will be conducted before and after instrument-level qualification vibration. The pointing tests eliminated would primarily be associated with repetitive measurements to build a confidence statistic. In addition, tests would be repeated as necessary to explain any system-level changes detected. Previous changes have generally traced to the test gear.

Fleig discussed geolocation ramifications from the proposed changes to the MODIS pointing testing (Attachment 2). Fleig said there is a direct trade-off

between the savings from reducing the prelaunch schedule and costs to adding post-launch costs and schedules. He said approximately there will be a two- to three-month delay in post-launch processing if there is an actual instrument change to the proposed 300 arc seconds. He says the SDST will be able to reduce the geolocation to 0.1 pixel eventually. He estimates that the two- to three-month extension is for getting the MODIS pixels to approximately 0.5 pixel accuracy. However, the remaining work to 0.1 pixel will remain regardless if MODIS pointing is at 90 or 300 arc seconds. He concluded that EOS may consider reducing the testing but strongly recommended not to loosen the specifications.

Fred Patt discussed the MODIS geolocation error analysis and reduction (Attachment 3). He reported that there are many temporal and instrument related issues that need a time series of data to resolve. For many previous instruments such as SMM, six months were needed to resolve geolocation problems. They typically start geolocation analyses using islands for assessing pointing errors. This is followed by using larger scale subsamples within land areas using well-defined control points/features.

Fleig said they will update their 1993 Geolocation Error Analysis, Version 1 by the next MODIS Science Team meeting, using SBRS updated information to be delivered this summer, as well as the latest EOS AM platform attitude and tracking data. Fleig said SDST is contacting EDC about accessing their GCP database. Justice indicated there should be improvements made to the several problems associated with the current GCP data set. Fleig is reviewing the SDST budget and schedule related to the GCPs.

Salomonson requested that Barker indicate what changes, if any, were determined to the Landsat TM after the Landsat Image Data Quality (LIDQA) program on geometric location errors. Justice wants the MODIS pointing changes to be addressed by SWAMP.

Salomonson and Barnes noted that they want strongly to keep the current geolocation specifications for the next MODIS. Salomonson asked if Weber would draft a note describing a deviation permitted from the current pointing testing plan but not to reduce the technical specifications. He also had the opinion that there should be a MODIS radiometric and geometric characterization period after launch, lasting up to nine months. This period would evaluate the radiometric and geometric performance of MODIS function on the AM-1 spacecraft. This characterization period could be followed by a product verification period. The approach would mean that some of the Science Team's efforts would be devoted to evaluating the radiometric and geometric performance as manifested in their products followed naturally by the relevant product validation effort.

### **3.0 ACTION ITEMS**

### **3.1 New Action Items**

1. *D. Weber*: Prepare a draft statement to SBRS changing the prelaunch MODIS pointing plan.
2. *J. Barker*: Report on the Landsat LIDQA program as related to geometric characterization and corrections after launch.

### **3.2 Action Items Carried Forward**

3. *R. Murphy*: Meet with Yoram Kaufman and Harry Montgomery to resolve the band 1 & 2 saturation issue and determine whether it impacts the atmospheric narrow band filter.

## **4.0 ATTACHMENTS**

NOTE: All attachments referenced below are maintained in MODARCH and are available for distribution upon request. Please contact David Herring, MAST Technical Manager, at (301) 286-9515, Code 920, NASA/Goddard Space Flight Center, Greenbelt, MD 20771 if you desire copies of any attachments.

1. "MODIS Pointing Issues", by Richard Weber
2. "Geolocation", by Al Fleig
3. "Geolocation Methods", by Fred Patt